

REMARKS

By this Amendment, Applicant amends claims 1, 5, 8, 12-14, 18-23 for clarity and to more appropriately define Applicant's invention, cancels claims 2, 4, 7, 9, 11, and 15-17, without prejudice or disclaimer of the subject matter thereof, and adds new claims 24-31 to protect additional aspects of Applicant's invention. No new matter is added. Claims 1, 3, 5-6, 8, 10, 12-14, and 18-31 are thus pending in this application.

In the Office Action dated December 8, 2003, the Examiner rejected claims 1, 3-6, 8, 10-15, and 17-23 under 35 U.S.C. § 102(e) as anticipated by Lin (U.S. Patent No. 6,240,382); rejected claims 1 and 5 under 35 U.S.C. § 102(e) as anticipated by Gersho et al. (U.S. Patent No. 6,233,550), hereinafter Gersho '550; rejected claims 2, 7, 9, and 16 under 35 U.S.C. § 103(a) as unpatentable over Lin in view of Gersho et al. (U.S. Patent No. 6,311,154), hereinafter Gersho '154; rejected claims 2 and 7 under 35 U.S.C. § 103(a) as unpatentable over Gersho '550 in view of Gersho '154; and rejected claims 1 and 5 under 35 U.S.C. § 103(a) as unpatentable over JP 2000-122698.

Additionally, Applicant notes that the Examiner appears to have handwritten an objection to the specification on the Office Action Summary Sheet (PTO-326), alleging an insufficiently descriptive title. In an effort to expedite the prosecution of this application, Applicants have hereby amended the title to --SPEECH ENCODING AND DECODING METHOD AND ELECTRONIC APPARATUS FOR SYNTHESIZING SPEECH SIGNALS USING EXCITATION SIGNALS--. Accordingly, Applicant respectfully requests the Examiner to withdraw the objection to the title.

Applicant respectfully traverses the rejection of claims 1, 3-6, 8, 10-15, and 17-23 under 35 U.S.C. § 102(e) as anticipated by Lin. To properly anticipate Applicants' claimed invention, the Examiner must demonstrate the presence of each and every

element of the claim in issue, either expressly described or under principles of inherency, in a single prior art reference. Furthermore, "[t]he identical invention must be shown in as complete detail as is contained in the . . . claim." See M.P.E.P. § 2121 (8th ed., Aug. 2001), *quoting* Richardson v. Suzuki Motor Co., 868 F.2d 1126, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989). Finally, "[t]he elements must be arranged as required by the claim." M.P.E.P. § 2131 (8th ed. 2001), p. 2100-69.

Applicant's claim 1 recites a combination including, among other things, "generating an excitation signal using an adaptive codebook, which stores a past modified excitation signal, and a second codebook; modifying the excitation signal by filter processing which is executed by an excitation filter having low-pass characteristics; and storing the modified excitation signal in the adaptive codebook." Lin does not disclose or suggest at least these features.

By contrast, Lin discloses a speech communication system using a code excited linear prediction (CELP) speed decoder. As shown in Fig. 1, a CELP encoder receives input speech samples that have been converted to digital form. The CELP encoder represents the input speech samples as digital parameters including a line spectral pair (LSP) index, a pitch lag and gain, and a code index and gain. The input speech samples are then processed in accordance with known techniques of LPC analysis, and are then quantized by a LSP quantization circuit into a convention LSP index. See col. 4, lines 6-19.

Fig. 2 of Lin shows a CELP system decoder. A received innovation code index and its associated gain are input to a ternary decoder codebook. The ternary decoder codebook includes a first binary codebook and a second binary codebook. The outputs

of the codebooks are added together by an adder to form a ternary codebook output.

See col. 4, line 62 - col. 5, line 6. However, Lin fails to teach a combination including at least "generating an excitation signal using an adaptive codebook, which stores a past modified excitation signal, and a second codebook; modifying the excitation signal by filter processing which is executed by an excitation filter having low-pass characteristics; and storing the modified excitation signal in the adaptive codebook," as recited in claim 1. Since Lin does not teach each and every element of claim 1, it cannot anticipate claim 1. Accordingly, Applicant respectfully requests the Examiner to withdraw the rejection of claim 1.

Independent claims 5, 8, 14, 18, 19, 20, while of a different scope, include recitations similar to that of claim 1. For example, claim 5 recites a combination including, among other things, "generating an excitation signal by using the selected first and second code vectors," "modifying the generated excitation signal by filter processing which is executed by an excitation filter having low-pass characteristics," and "storing the modified excitation signal in the adaptive codebook." Claim 8 recites a combination including, among other things, "generating an excitation signal using an adaptive codebook, which stores a past modified excitation signal, and a second codebook," "modifying the excitation signal by filter processing which is executed by an excitation filter having low-pass characteristics," and "storing the modified excitation signal in the adaptive codebook."

Claim 14 recites a combination including, among other things, "generating an excitation signal using an adaptive codebook, which stores a past modified excitation signal, and a second codebook," "modifying the excitation signal by filter processing

which is executed by an excitation filter having low-pass characteristics,” and “storing the modified excitation signal in the adaptive codebook.” Claim 18 recites a combination including, among other things, “a generator configured to generate an excitation signal using the adaptive codebook and the second codebook,” and “an excitation filter having low-pass characteristics configured to modify the excitation signal by filter processing and generate a modified excitation signal to be stored in the adaptive codebook.”

Claim 19 recites a combination including, among other things, “an excitation signal generator configured to generate an excitation signal from the selected first and second code vectors,” and “an excitation signal modifier having low-pass characteristics configured to modify the excitation signal by filter processing, and generate a modified excitation signal to be stored in the first codebook.” And claim 20 recites a combination including, among other things, “a signal generator configured to generate an excitation signal using the adaptive codebook and the second codebook,” and “an excitation filter having low-pass characteristics configured to modify the excitation signal by filter processing and generate a modified excitation signal to be stored in the adaptive codebook.”

For at least the same reasons discussed above in relation to claim 1, independent claims 5, 8, 14, 18, 19, and 20 are also allowable over Lin. Accordingly, Applicant respectfully requests the Examiner to withdraw the rejections of claims 5, 8, 14, 18, 19, and 20.

Dependent claims 3, 6, 10, 12-13, and 21-23 depend from one of allowable independent claims 1, 5, 8, 14, 18, 19, and 20 and are thus allowable at least due to

their dependence. Applicant respectfully requests the Examiner to withdraw the rejection of claims 3, 6, 10, 12-13, and 21-23. Because Applicant has canceled claims 4, 11, 15, and 17, the rejections of these claims have been rendered moot.

Applicant respectfully traverses the rejection of claims 1 and 5 under 35 U.S.C. § 102(e) as anticipated by Gersho '550.

As discussed above, Applicant's claim 1 recites a combination including, among other things, "generating an excitation signal using an adaptive codebook, which stores a past modified excitation signal, and a second codebook; modifying the excitation signal by filter processing which is executed by an excitation filter having low-pass characteristics; and storing the modified excitation signal in the adaptive codebook." Gersho '550 does not disclose or suggest at least these features.

By contrast, Gersho '550 discloses a method and apparatus for encoding speed for communication to a decoder for reproduction of the speech where the speech signal is classified into different classes. Fig. 10 shows a general approach used to estimate model parameters. A candidate parameter set is applied to an excitation synthesis model and a synthetic excitation signal is produced, which is used as a target signal. A signal modification module performs a warping of a LP residual signal to best match the target signal. Error measures are computed for each of several candidate parameter sets, and a final choice is made of the best parameter set for speech reproduction. See col. 21, lines 16-39.

However, Gersho '550 fails to teach a combination including at least "generating an excitation signal using an adaptive codebook, which stores a past modified excitation signal, and a second codebook; modifying the excitation signal by filter processing

which is executed by an excitation filter having low-pass characteristics; and storing the modified excitation signal in the adaptive codebook,” as recited in claim 1. Since Gersho '550 does not teach each and every element of claim 1, it cannot anticipate claim 1. Accordingly, Applicant respectfully requests the Examiner to withdraw the rejection of claim 1.

Independent claim 5 while of a different scope, include recitations similar to that of claim 1. As discussed above, claim 5 recites a combination including, among other things, “generating an excitation signal by using the selected first and second code vectors,” “modifying the generated excitation signal by filter processing which is executed by an excitation filter having low-pass characteristics,” and “storing the modified excitation signal in the adaptive codebook.” For at least the same reasons discussed above in relation to claim 1, Gersho '550 does not anticipate claim 5. Accordingly, Applicant respectfully requests the Examiner to withdraw the rejection of claim 5.

Because Applicant has canceled claims 2, 7, 9, and 16, without prejudice or disclaimer of the subject matter thereof, the rejections of these claims under 35 U.S.C. § 103(a) as unpatentable over Lin in view of Gersho '154 are rendered moot. Additionally, because Applicant has canceled claims 2 and 7, without prejudice or disclaimer of the subject matter thereof, the rejections of these claims under 35 U.S.C. § 103(a) as unpatentable over Gersho '550 in view of Gersho '154 are also rendered moot. Applicant further submits that neither Lin, Gersho '550, nor Gersho '154, taken alone or in reasonable combination, disclose or suggest the exemplary features discussed above in connection with independent claims 1, 5, 8, 14, 18, 19, and 20.

Applicant respectfully traverses the rejection of claims 1 and 5 under 35 U.S.C. § 103(a) as unpatentable over JP 2000-122698. To establish a proper *prima facie* case of obviousness under 35 U.S.C. § 103(a), the Examiner must demonstrate each of three requirements. First, the reference or references, taken alone or combined, must teach or suggest each and every element recited in the claims. See M.P.E.P. § 2143.03 (8th ed. 2001). Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the references in a manner resulting in the claimed invention. See M.P.E.P. § 2143.01 (8th ed. 2001). Third, a reasonable expectation of success must exist. See M.P.E.P. § 2143.02 (8th ed. 2001). Moreover, each of these requirements must be found in the prior art, not in applicant's disclosure. See M.P.E.P. § 2143 (8th ed. 2001).

As discussed above, Applicant's claim 1 recites a combination including, among other things, "generating an excitation signal using an adaptive codebook, which stores a past modified excitation signal, and a second codebook; modifying the excitation signal by filter processing which is executed by an excitation filter having low-pass characteristics; and storing the modified excitation signal in the adaptive codebook." Also, as discussed above, claim 5 while of a different scope includes similar recitations as claim 1.

JP 2000-122698 does not disclose or suggest at least these features of claims 1 and 5. Instead, the reference discloses a technique of processing an excitation signal by pulse separation using a small amplitude and a non-filter process for emphasizing a pulse of a large amplitude. For example, a sound source signal suppressing means

inputs an optimal exciting sound source signal determined by minimizing an error by an error minimizing means, suppressed the signal's amplitude to form a pulse with a small amplitude on the basis of a suppressing rate and a suppressed general, generates an amplitude-suppressed sour source signal, and renews an internal state of an adaptive sound source encoding book using the result. See Abstract. Accordingly, the reference does not disclose or suggest claims 1 and 5.

Moreover, the Examiner has not provided any motivation for modifying the applied reference to arrive at Applicant's claimed invention. To properly establish obviousness, the Examiner must demonstrate some suggestion or motivation in the reference, or in the knowledge generally available to one of ordinary skill in the art, to modify the reference to result in the claimed invention. In addition, the Examiner has not offered a reasonable expectation of success for making any such modifications to the reference. For at least the above reasons, Applicant respectfully requests the Examiner to withdraw the rejection of claims 1 and 5 under 35 U.S.C. § 103(a).

Finally, new claims 24-31 depend from one of allowable claims 1, 5, 8, 14, and 18, and include additional recitations that are neither disclosed nor suggested by the cited prior art, taken alone or in reasonable combination. Accordingly, Applicant respectfully requests the timely allowance of new claims 24-31.

CONCLUSION

In view of the foregoing remarks, Applicant respectfully requests reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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